

Crowfield Plantation; A Case Study

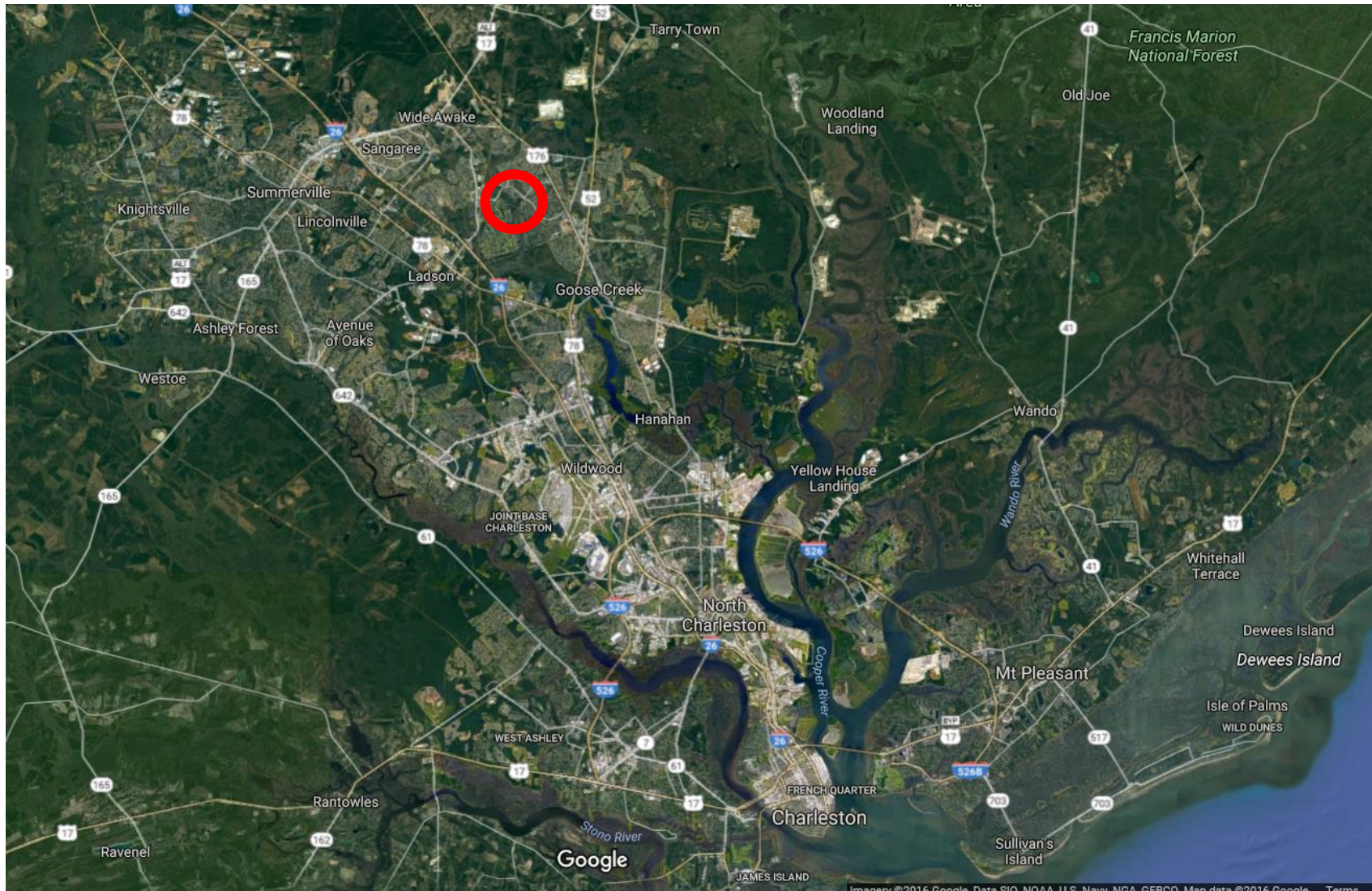


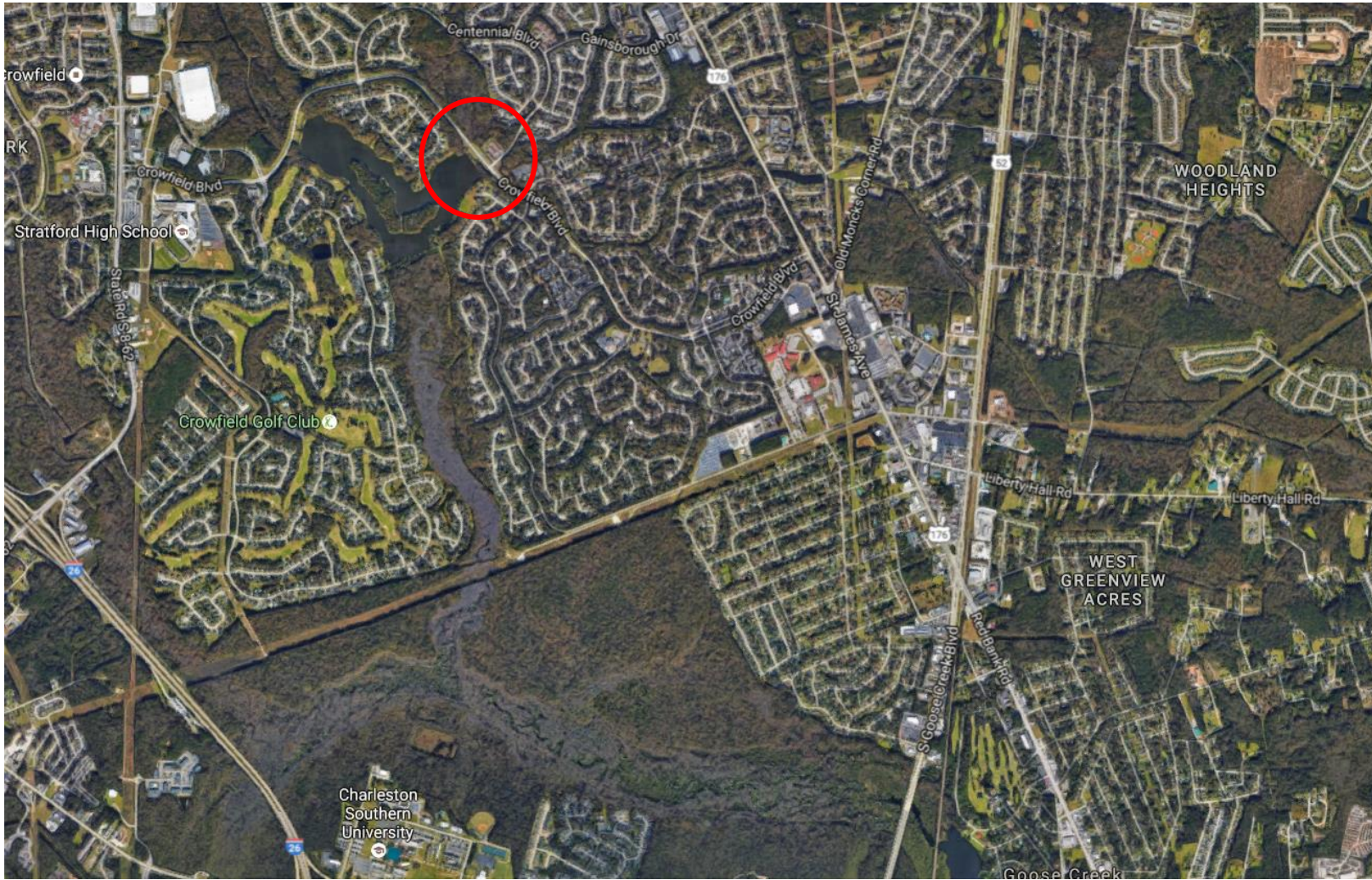
Thursday, November 3rd 2016

Kelsey Gagnon

Stormwater Coordinator

Berkeley County Stormwater Management Program







Project Overview: Crowfield Plantation Lake Maintenance Plan

Timeline

- Initial Inquiries June 2016
- Project Submitted July 2016
- Comments Sent August 2016
- Meeting August 31, 2016
- Resolution/Approval September 2016







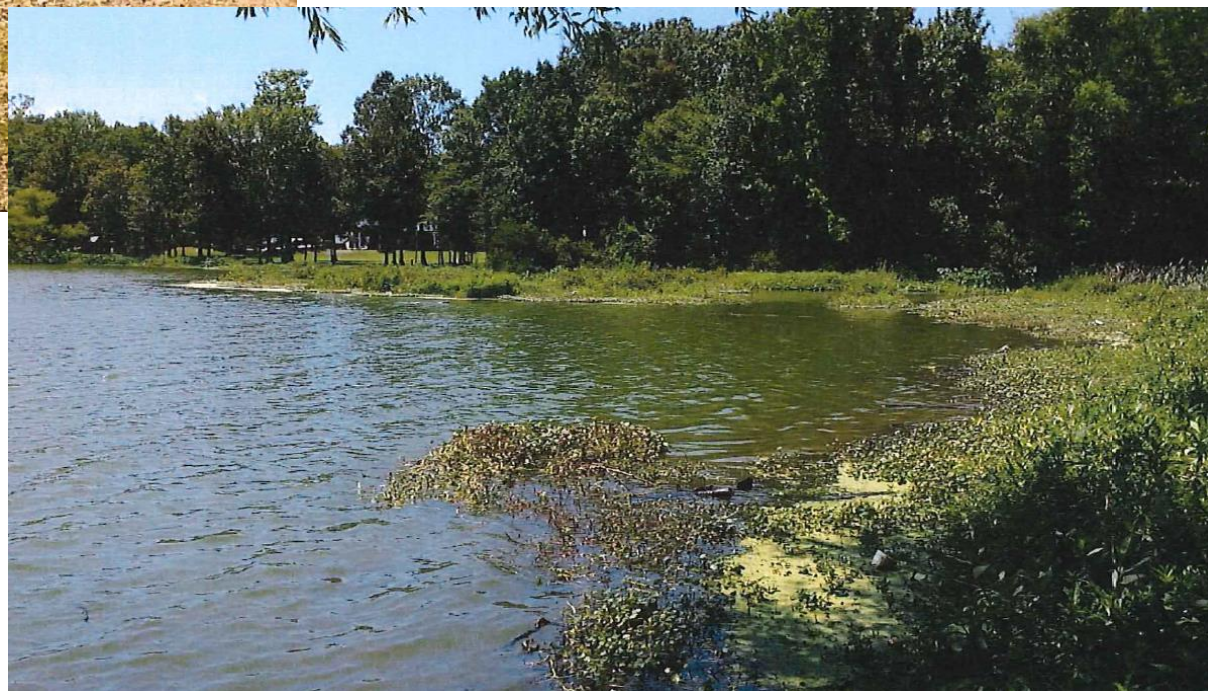
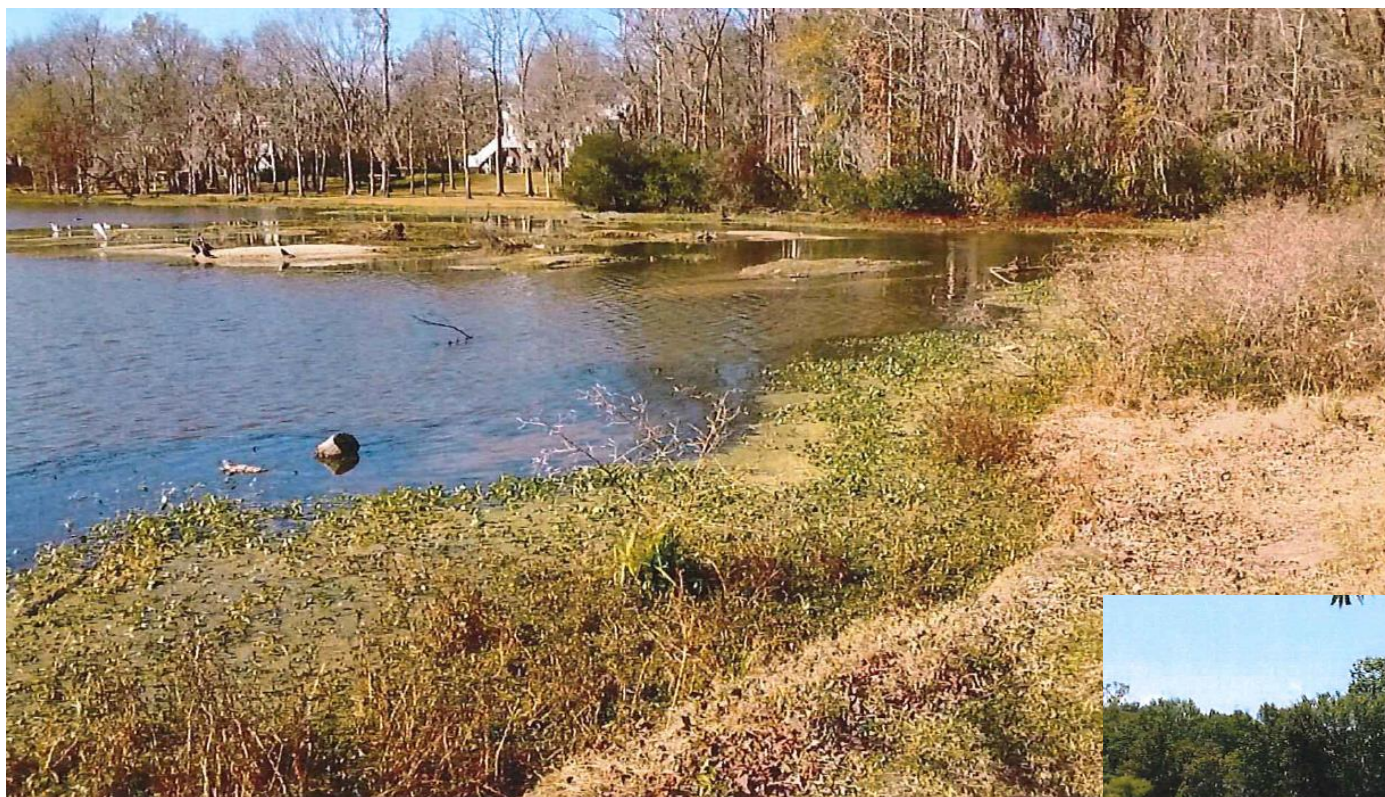
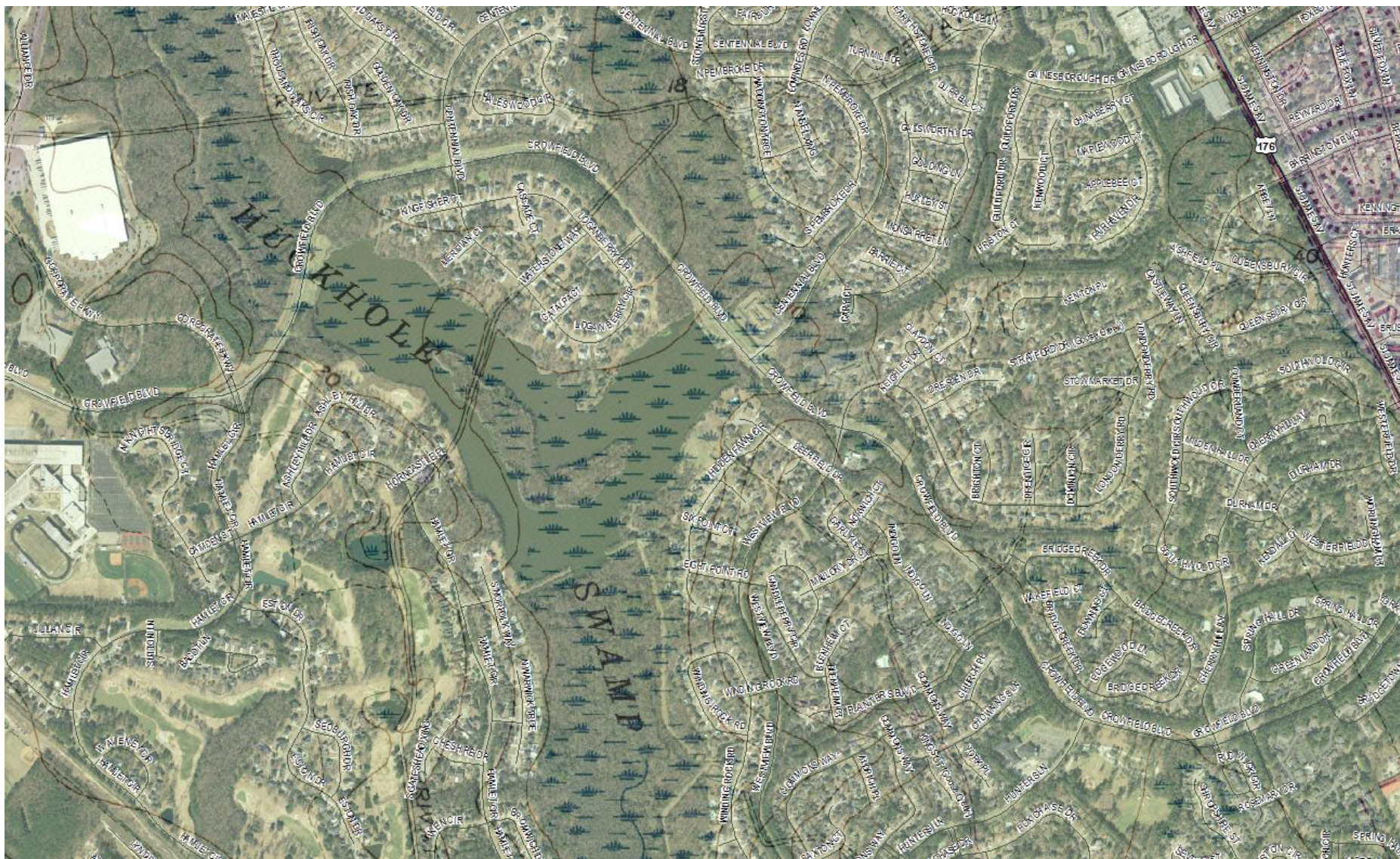


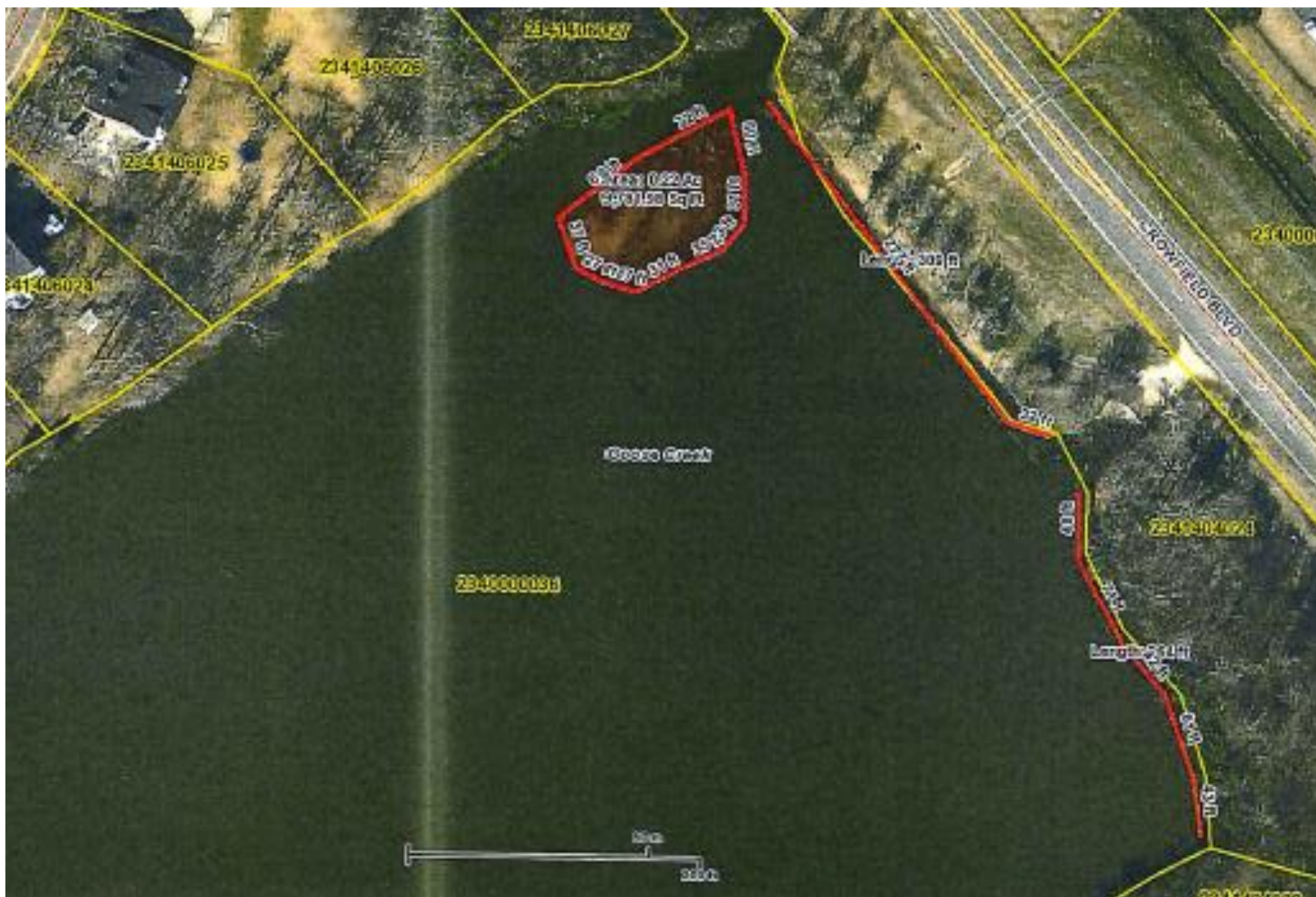


Image © 2016 DigitalGlobe





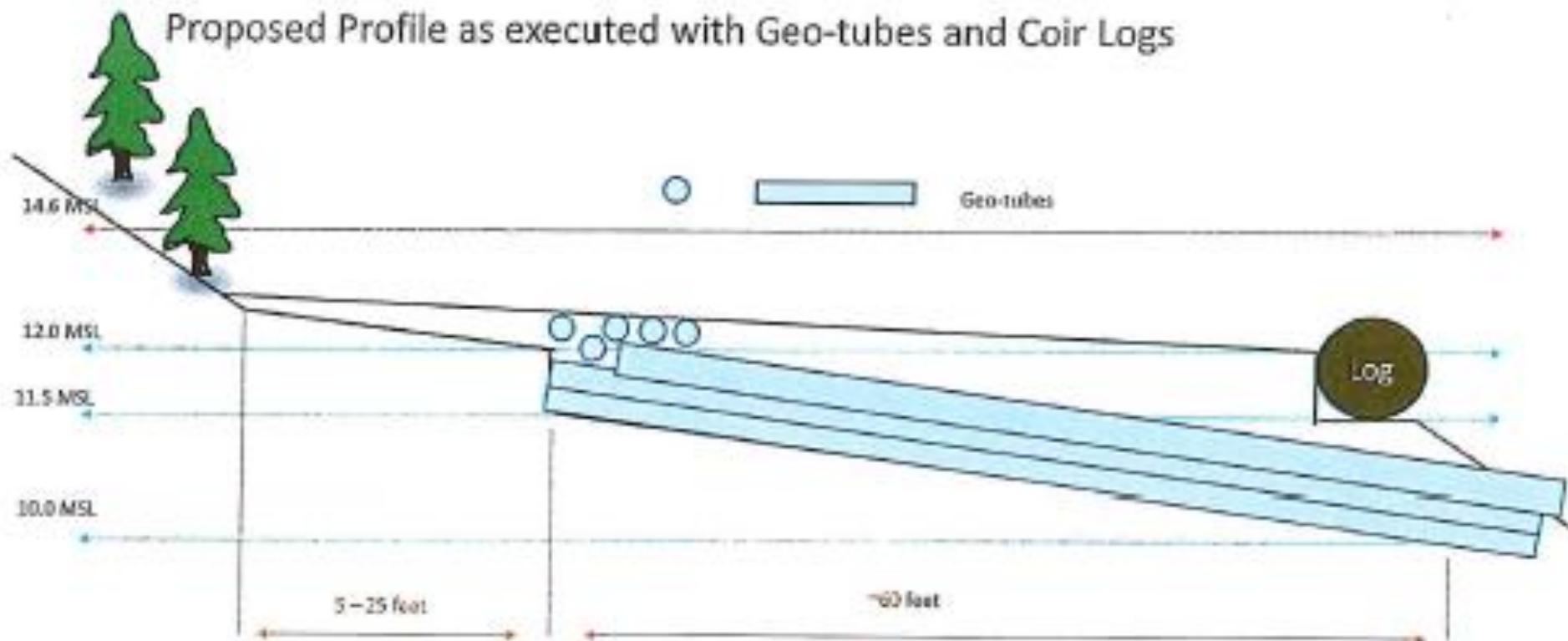








Proposed Profile as executed with Geo-tubes and Coir Logs



14.6 MSL 100-year or 1% elevation
12.0 MSL is the pool elevation
~18 MSL is Crowfield BLVD elevation

Before Profile black
After Profile green



HOW DOES THIS RELATE TO
EFFECTIVE COMMUNICATION?

The mission of the Department is to develop and implement a SWMP to comply with the regulatory requirements of the Permit as well as to protect, maintain, and enhance water quality and the environment of Berkeley County and the short-term and long-term public health, safety, and general welfare of the citizens of Berkeley County.



HOW DOES THIS RELATE TO EFFECTIVE COMMUNICATION?



BUILDING STRONG OPEN COMMUNICATION RELATIONSHIPS



KELSEY

MIKE

EMAILS and PHONE CALLS PLEASE!



attack, aunt, autumn, away, baby, base, back, bad, bag, ball, bank, basket, bath, be, bean, bear, beautiful, beer, bed, bedroom, behave, before, begin, behind, bell, below, besides, best, better, between, big, bird, birth, birthday, bit, bite, black, bleed, block, blood, blow, blue board, boat, body, boil, bone, book, border, born, borrow, both, bottle, bottom, bowl, box, boy, branch, brave, bread, break, breakfast, breathe, bridge, bright, bring, brother, brown, brush, build, burn, business, bus, busy, but, buy, by, cake, call, can, candle, cap, car, care, care, careful, careless, carry, case, cat, catch, central, century, certain, chair, chance, change, chase, cheap, cheese, chicken, child, children, chocolate, choice, choose, circle, city, class, clever, clean, clear, climb, clock, cloth, clothes, cloud, cloudy, close, coffee, coat, coin, cold, collect, colour, comb, comfortable, common, compare, come, complete, computer, condition, continue, control, cook, cool, copper, corn, corner, correct, cost, contain, count, country, course, cover, crash, cross, cry, cup, cupboard, cut, dance, dangerous, dark, daughter, day, dead, decide, decrease, deep, deer, depend, desk, destroy, develop, die, different, difficult, dinner, direction, dirty, discover, dish, direction, do, dog, door, double, down, draw, dream, dress, drink, drive, drop, dry, duck, dust, duty, each, ear, early, earn, earth, east, easy, eat, education, effect, egg, eight, either, electric, elephant, else, empty, end, enemy, enjoy, enough, enter, equal, entrance, escape, even, evening, event, ever, every, everyone, exact, everybody, examination, example, except, excited, exercise, expect, expensive, explain, extremely, eye, face, fact, fail, fall, false, family, famous, far, farm, father, fast, fat, fault, fear, feed, feel, female, fever, few, fight, fill, film, find, fine, finger, finish, fire, first, fit, five, fix, flag, flat, float, floor, flour, flower, fly, fold, fool, foot, football, for, force, foreign, forest, forget, forgive, fork, form, fox, four, free, freedom, freeze, fresh, friend, friendly, from, front, fruit, full, fun, funny, furniture, further, future, game, garden, gate, general, gentleman, get, gift, give, glad, glass, go, goat, god, gold, good, goodbye, grandfather, grandmother, grass, grave, great, green, grey, ground, group, grow, gun, hair, half, hall, hammer, hand, happen, happy, hard, hat, hate, have, he, head, healthy, hear, heavy, hello, help, heart, heaven, height, help, hen, her, here, hers, hide, high, hill, him, his, hit, hobby, hold, hole, holiday, home, hope, horse, hospital, hot, hotel, house, how, hundred, hungry, hour, hurry, husband, hurt, I, ice, idea, if, important, increase, inside, into, introduce, invent, iron, invite, is, island, it, its, jelly, job, join, juice, jump, just, keep, key, kill, kind, king, know, knee, knife, not, know, ladder, lady, lamp, land, large, last, late, lately, laugh, lazy, lead, leaf, learn, leave, leg, left, lend, length, less, less, letter, library, life, light, like, lion, lip, list, listen, little, live, lock, lonely, long, look, lose, lot, love, low, lower, luck, machine, main, make, male, man, many, map, mark, market, marry, matter, may, me, meal, mean, measure, meat, medicine, meet, mention, method, middle, milk, million, mind, minute, miss, mistake, mix, model, modern, moment, money, monkey, moon, more, morning, most, mother, mountain, move, much, music, must, my, name, narrow, nation, nature, near, nearly, neck, need, needle, neighbor, net, new, news, newspaper, nice, night, nine, no, noble, noise, none, nor, north, nose, not, nothing, notice, now, number, obey, object, ocean, of, off, offer, office, often, oil, old, on, one, only, open, opposite, or, orange, order, other, our, out, outside, over, own, page, pain, paint, pair, pan, paper, parent, park, part, partner, party, pass, past, path, pay, peace, pen, pencil, people, pepper, per, perfect, period, person, petrol, photograph, piano, pick, picture, piece, pig, pin, pink, place, plane, plant, plastic, plate, play, please, pleased, plenty, pocket, point, poison, police, polite, pool, poor, popular, position, possible, potato, pour, power, present, press, pretty, prevent, price, prince, prison, private, prize, probably, problem, produce, promise, proper, protect, provide, public, pull, punish, pupil, push, put, queen, question, quick, quiet, quite, radio, rain, rainy, raise, reach, read, ready, real, really, receive, record, red, remember, remind, remove, rent, repair, repeat, reply, report, rest, restaurant, result, return, rice, rich, ride, right, ring, rise, road, rob, rock, room, round, rubber, rude, rule, ruler, run, rush, sad, safe, sail, salt, same, sand, save, say, school, science, scissors, search, seat, second, see, seem, sell, send, sentence, serve, seven, several, sex, shade, shadow, shake, shape, share, sharp, she, sheep, sheet, shelf, shine, ship, shirt, shoe, shoot, shop, short, should, shoulder, shout, show, sick, side, signal, silence, silly, silver, similar, simple, single, since, sing, sink, sister, sit, six, size, skill, skin, skirt, sky, sleep, slip, slow, smoke, small, smell, smile, smoke, snow, so, soap, sock, soft, some, someone, something, sometimes, son, soon, sorry, sound, soup, south, space, speak, special, speed, spell, spend, spoon, sport, spread, spring, square, stamp, stand, star, start, station, stay, steal, team, step, still, stomach, stone, stop, store, storm, story, strange, street, strong, structure, student, study, stupid, subject, substance, successful, such, sudden, sugar, suitable, summer, sun, sunny, support, sure, surprise, sweet, swim, sword, table, take, talk, tall, taste, taxi, tea, teach, team, tear, telephone, television, tell, ten, tennis, terrible, test, than, that, the, their, then, there, therefore, these, thick, thin, thing, think, third, this, though, threat, three, tidy, tie, title, to, today, toe, together, tomorrow, tonight, too, tool, tooth, top, total, touch, town, train, tram, travel, tree, trouble, true, trust, twice, try, turn, type, uncle, under, understand, unit, until, up, use, useful, usually, vegetable, very, village, voice, visit, wait, wake, walk, want, warm, wash, waste, watch, water, way, we, weak, wear, weather, wedding, week, weight, welcome, well, west, wet, what, wheel, when, where, which, while, white, who, why, wide, wife, wild, will, win, wind, window, wine, winter, wire, wise, wish, with, without, woman, wonder, word, work, world, worry, worst, write, wrong, year, yes,



WE LOVE MEETINGS



"Ok, now that I have you all here..."





2.2.12 STORMWATER FACILITY OWNERSHIP AND MAINTENANCE

2.2.12.1 OWNERSHIP

The owner of a portion or the entire stormwater system, as the case may be, shall be clearly designated before a stormwater approval will be issued. Ownership shall also be recorded on the final plat. Ownership shall imply responsibility for maintaining the stormwater system, including all ponds and other BMPs used for controlling runoff quantity and quality. **Ownership does not imply that the owner(s) may in any way alter the size, or function of any component of the stormwater system without consent from the County Engineer.** Owners found altering such components will be required to remove any alterations.

2.2.12.2 MAINTENANCE

Each component of the stormwater management system (pipes, inlets, BMPs) shall have a maintenance plan (activities and associated schedule) as part of stormwater management plan and CAA package. The plan shall also cover temporary measures used during construction in addition to the long term maintenance of the system. Suggested maintenance activities and recurrence intervals for water quality BMPs are discussed and referenced in Chapter 3.

In addition, **Covenants for Permanent Maintenance of Stormwater Systems must be recorded in the permanent land records with the Berkeley County Register of Deeds.** The Covenants is provided in Appendix B. The Covenants must be signed and executed prior to the issuance of a stormwater approval.

Covenants



- or duty to undertake or perform any action allowed for, or permitted by, this Covenant. The Owner, its successors and assigns, further agrees to indemnify and hold the County harmless from any liability arising out of the management, operation, maintenance, or failure of any stormwater facilities, BMPs, and improvement subject to this Covenant.
8. Notwithstanding any right extended to the County pursuant to this Covenant, it is expressly recognized and acknowledged that the County retains all prosecutorial rights and remedies available to it, including the enforcement of any and all applicable County ordinances, against the Owner, its successors and assigns, relating to the operation, maintenance, and/or repair of stormwater facilities, BMPs, and improvements located on the Property.
9. This Covenant shall be recorded among the land records of Berkeley County, South Carolina, and shall constitute running with the land, and shall be binding on the Owner, its administrators, executors, assigns, heirs and any other successors in interests, including homeowners association.

IN WITNESS WHEREOF the undersigned have caused this Covenant to be executed on the date first written above.

WITNESSES:

OWNER:

Witness: _____

Individual/Company/Corporation/Partnership Name _____

Witness _____

By: _____
Title: _____

STATE OF SOUTH CAROLINA)
)
COUNTY OF BERKELEY)

ACKNOWLEDGEMENT

I, the undersigned Notary Public, do hereby certify that _____

_____, personally
appeared before me this day and acknowledged the due execution of the foregoing instrument

WITNESS my hand and seal this _____ day of _____, 20____.

(SEAL)

Notary Public for South Carolina

My Commission Expires: _____

Neighborhood Stormwater Pond Maintenance Log and Resources



Agency/Organization Contact List

Agency/Organization	Phone Number	Website(s)
SC Department of Health and Environmental Control (SCDHEC) -plats, stormwater regulations/permits,	(803) 898-3432	http://www.scdhec.gov/
SCDHEC Office of Ocean and Coastal Resource Management -buffers, stormwater pond maintenance, best management practices, water quality	(843) 953-0200	http://www.scdhec.gov/environment/ocrm/
South Carolina Department of Natural Resources (SCDNR) -nuisance wildlife, fish stocking	(843) 953-5291	http://www.dnr.sc.gov/ http://www.dnr.sc.gov/wildlife/control.html
Carolina Clear -stormwater pond general information, workshops	(864) 656-3311	http://www.clemson.edu/public/carolinaclear/
Clemson University Cooperative Extension Services -stormwater ponds, vegetation, soil testing, buffers	(843) 722-5940	Plant Problem Clinic http://www.clemson.edu/public/regulatory/plant_industry/plant_prob_clinic/ Pesticide Applicator Training http://www.clemson.edu/extension/pest_ed/app_training/index.html
South Carolina Native Plants Society -vegetation, buffers		http://scnps.org/ http://scnps.org/education/homeowners/
U.S. Army Corps of Engineers -wetlands	(843) 329-8044	http://www.sac.usace.army.mil/Missions/Regulatory.aspx
South Carolina Sea Grant Consortium -aquatic weed control	(843) 953-2078	http://www.scseagrant.org/
NRCS Soil and Water Conservation District- Berkeley -invasive species, soil quality/health, water quality, wildlife habitat	(843) 719-4146	http://www.nrcs.usda.gov/wps/portal/nrcs/site/sc/home/
NRCS Soil and Water Conservation District- Charleston -invasive species, soil quality/health, water quality, wildlife habitat	(843) 727-4160	http://www.nrcs.usda.gov/wps/portal/nrcs/site/sc/home/
NRCS Soil and Water Conservation District- Dorchester -invasive species, soil quality/health, water quality, wildlife habitat	(843) 563-3218	http://www.nrcs.usda.gov/wps/portal/nrcs/site/sc/home/
NRCS Soil and Water Conservation District- Beaufort -invasive species, soil quality/health, water quality, wildlife habitat, dugout ponds	(843) 522-8100	http://www.nrcs.usda.gov/wps/portal/nrcs/site/sc/home/

www.ashleycooper.org



www.clemson.edu/extension/stormwaterponds

https://www.clemson.edu/extension/natural_resources/water/stormwater_ponds/resources/files/final_binder_pond_maintenance.pdf

THANK YOU



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<https://www.berkeleycountysc.gov/drupal/engineering/storm>